

Missouri Seat Belt Usage Survey
for
2016

Conducted for the Traffic & Highway Safety Division of the
Missouri Department of Transportation
by
The Missouri Safety Center
University of Central Missouri

Final Report Issued
August, 2016

EXECUTIVE SUMMARY

The National Highway Traffic Safety Administration (NHTSA) issued new Uniform Criteria for State Observational Surveys of Seat Belt Use, with the Final Rule being published in the Federal Register (Vol. 76, No. 63, Friday, April 1, 2011, Rules and Regulations, pp. 18056 – 18059). The Uniform Criteria were revised in an effort to standardize the requirements for the state-wide observing and reporting of seat belt use for drivers and right front-seat passengers. The new requirements contain numerous important changes to include: county selection based upon fatality-based criterion rather than the population-based criterion of the past, the use of a weighted calculation based upon several factors, a change in the standard error from 5.0 percent to 2.5 percent, and the involvement of a qualified statistician in the sampling design and annual reporting aspects of the survey. Missouri's methodology was approved by NHTSA March 29, 2013.

The following report documents the 2016 results of Missouri's annual state-wide seat belt use survey. The principal objective being to establish a seat belt usage rate of drivers and right front-seat passengers from which strategies targeting educational and enforcement occupant protection programs can be developed. Missouri's sampling plan addresses both the need for a state-wide seat belt usage rate (required by NHTSA) and a usage rate for each of the seven Missouri Department of Transportation (MoDOT) Districts. A regional coalition consisting of traffic safety experts exists within each of the seven MoDOT District's and is tasked with the development of a regionally based strategy to reduce crash-related fatalities. The ability to provide each regional coalition with a district seat belt use estimate would be helpful in the establishment of programs to improve seat belt use.

Missouri's observational survey of seat belt usage took place June 6th through June 19th, 2016. The Traffic and Highway Safety Division of MoDOT contracted with the Missouri Safety Center located at the University of Central Missouri to help develop, implement, and analyze the 2016 observational survey with the statistical expertise being provided by Dr. Donald N. Nimmer, Director Emeritus of Institutional Research at the University of Central Missouri.

Based upon a total of 123,678 vehicle occupants observed, the 2016 seat belt use rate on Missouri roadways was found to be 81.4 percent with a standard error of 0.2191. Of these 123,678 occupants, seat belt use could not be determined for 530 drivers and right front seat passengers, therefore, the non-response or unknown use rate for the 530 occupants was 0.43 percent, and does not exceed the 10 percent requirement established by NHTSA.

The 1998 seat belt use survey was done as the base line; then each survey after and up through the 2012 seat belt use survey was conducted as a replication of the former and all were probability based surveys with the data collection locations representative of 85 percent of the State's population and was, at that time, in compliance with the guidelines recommended by NHTSA. However, due to the changes in methodology required by NHTSA, the "Final Rule", and Missouri, the 2013 through 2016 survey locations now account for 85 percent of the crash-related fatalities in the State, and for this reason the data collected during the 2013, 2014, 2015 and the 2016 survey may not be entirely comparable to those data collected prior to 2013.

Table 1 indicates the weighted results of observations from 1998 through 2016.

Table 1: Observations and Usage Rate by Year, 1998-2016

Year	Usage Rate	Vehicles Observed	Total Observation (Driver& Passenger)
2016	81.4%	96,705	123,678
2015	79.9%	91,463	118,081
2014	78.82%	90,015	117,297
2013	80.07%	82,128	108,096
2012	79.39%	92,860	119,474
2011	78.95%	97,646	127,720
2010	76.03%	96,160	126,419
2009	77.18%	94,799	122,962
2008	75.78%	88,980	116,274
2007	77.16%	87,543	114,432
2006	75.18%	90,345	117,901
2005	77.41%	82,051	105,233
2004	75.88%	85,066	111,966
2003	72.93%	83,781	109,619
2002	69.37%	75,412	99,099
2001	67.91%	73,603	97,544
2000	67.72%	70,230	92,000
1999	60.8%	74,058	95,538
1998	60.4%	74,930	97,233

TABLE OF CONTENTS

PAGE

EXECUTIVE SUMMARY	i
METHODOLOGY	1
County Selection	
Roadway Classification and Segment Selection	
DATA COLLECTION	2
Observers and Quality Control Monitors	
Observation and Survey Protocols	
RESULTS	4
Weighted vs. Un-weighted Estimations	
STATE-WIDE RESULTS.....	4
Weighted Data	
Un-weighted Data	

TABLES

PAGE

1	Observations and Usage Rate by Year, 1998-2016.....	ii
2	State-wide, Seat Belt Use in Missouri	5
3	State-wide, Belt Use by MoDOT District	5
4	State-wide, Belt Use by Roadway Type.....	6
5	State-wide, Belt Use by Vehicle Occupant	7
6	State-wide, Belt Use by MoDOT District	7
7	State-wide, Driver & Passenger Belt Use by Roadway Classification	8
8	State-wide, Driver Belt Use by Vehicle Type.....	8
9	State-wide, Driver Belt Use by Gender.....	9
10	State-wide, Driver & Passenger Belt Use by Day of the Week	9
11	State-wide, Vehicles Observed by Time of Day	10
12	State-wide, Vehicles Observed by Direction of Traffic Flow	10
13	State-wide, Vehicles Observed by Road Conditions	11

APPENDICES

PAGE

A	Vehicle Occupants Fatalities by County, 2008-2010	12
B	Top Counties with 85% of Vehicle Occupant Fatalities, 2008-2010.....	15
C	Population by Region for Top 85% Vehicle Occupant Fatality County 2010 Census Data ...	16
D	Road Segment by Functional Road Type by MoDOT District	19
E	Site Summary Form.....	33
F	Observation Form	34

METHODOLOGY

County Selection

The State of Missouri is comprised of 114 counties and the City of St. Louis. For the purpose of this study the city of St. Louis and the County of St. Louis have been combined and have been counted as a single county. A total of 63 counties account for 85 percent of the total fatalities from 2008 – 2010 and these represent the primary sampling unit (PSU). The fatality data are reported by county, in descending order of magnitude, in Appendix A, Vehicle Occupant Fatalities by County 2008-2010.

The need for both a state and MoDOT District seat belt use rate is the basis for the utilization of a multi-stage stratification sampling design. The 63 counties were first categorized by urbanicity (urban-population over 50,000 and rural-fewer than 50,000) and then by their respective MoDOT District (Northwest, Northeast, Kansas City, Central, St. Louis, Southwest and Southeast). The boundaries of these districts and the counties which lie therein are illustrated on the map in Appendix B, Top Counties with 85% of Vehicle Occupant Fatalities 2008-2010. It was further determined that two urban and two rural counties were desired for each MoDOT District which, when feasible were randomly selected, Population by Region for Top 85% Vehicle Occupant Fatality Counties 2010 Census Data is illustrated in Appendix C. The weighting assignment of each county for this random selection process was based upon the percent of vehicle miles traveled (VMT). However, an adjustment was made to both the Northwest and Northeast District's as only one urban county was available and an adjustment was made to the St. Louis District where there were no rural counties available for selection. As a result of this process 28 counties were selected for inclusion in the survey of seat belt use in Missouri.

Roadway Classification and Segment Selection

Twenty roadway segments (sites) were selected in each of the 28 survey counties for a total of 560 sites; that selection was based upon eight functional road classifications identified by MoDOT (Urban Interstate, Urban Freeway/Expressway, Urban Arterial, Urban Collector, Rural Interstate, Rural Freeway/Expressway, Rural Arterial, and Rural Collector) and their relative Daily Vehicle Miles Traveled (DVMT).

The target stratification proportions for each of the 28 survey counties and the corresponding 20 Road Segments by Functional Road Type are reported by MoDOT District in Appendix D.

DATA COLLECTION

Observers and Quality Control Monitors

Forty-seven observers were hired and trained by the Missouri Safety Center. All but four of the observers were experienced data collectors who had conducted seat belt observations in past surveys. The four newly hired observers received additional and individual training from the Missouri Safety Center.

All observers and quality control monitors were trained in the appropriate procedures of Missouri's survey. Data collection protocols, scheduling, site locations, field protocols and reporting requirements were all topics covered during the training. Additionally, observers were instructed on how to proceed in conditions of bad weather or temporary traffic impediments, as well as, if an observation site needed to be abandoned due to construction activities, safety concerns, or some other legitimate reason.

The Quality Control (QC) Monitors were given additional training that focused on their specific duties. These duties included verifying that the observers were at the appropriate observation site during the assigned time, ensuring that the observers were following field protocol and offering assistance if needed. Six quality control monitors were utilized to conduct random unannounced visits to 101 of the total 560 observation sites. This represents an 18 percent monitoring rate which is well above the 5 percent rate required by NHTSA.

Observation and Survey Protocols

Observation sites were geographically organized into clusters of 3, 4, or 5 sites to facilitate a reasonable driving time between locations. Each cluster was randomly assigned a single day of the week for the observation to take place. The sites within the cluster were then randomly assigned an observation period of time.

Two observers were required to work together at each observational site; one to articulate the observations for each vehicle while the other would record the observations. Each observer was given a survey schedule and a detailed map of site locations for their respective observational counties. The survey schedule specified the site number (both primary and alternate), survey route, referenced intersection, week day, start time, MoDOT District, and road type. Using the identified referenced intersection listed on the survey schedule, the observer was given the discretion to use their best judgment to select the safest location to conduct the survey. Observers recorded data from one lane (outermost or far-right lane) and one direction of travel per survey location. The observations were conducted on all days of the week during daylight hours between 7:00 a.m. and 6:00 p.m. Observations started at the predetermined assigned time and continue for exactly 45-minutes.

Observations were made and use, non-use or unknown use of seat belts was recorded for all drivers and front-seat outboard passengers including children riding in booster seats (excluding children in child safety seats). If there was no passenger in the right front-seat of an observed vehicle then the passenger field was left blank on the data collection form. Passenger cars, van/minivans, sport utility/crossover vehicles, pickup trucks and commercial vehicles weighing less than 10,000 pounds are all qualifying vehicles for the survey and are eligible for observation, regardless of the license state. The additional data element of driver gender was also collected and recorded. All these data were recorded on the Site Summary Form (Appendix E) and Observation Form (Appendix F).

RESULTS

Weighted vs. Un-weighted Estimations

Information recorded using the Site Summary and Observation Forms represent each vehicle observed. This information is considered to be raw or *un-weighted* data. While it might appear that using such information is the most direct and easiest to understand, it is often misleading when one considers that the observations on some road segments included every vehicle during the specified time period while significantly fewer vehicles were counted on other road segments. That is, all vehicles were counted on most two lane roads but it will not be true of multi-lane roadways where the observers included only those vehicles in the outer most right hand lane and/or, if the traffic was heavy, and recorded perhaps every third vehicle. For example, the St. Louis District comprised of primarily busy multi-lane roadways had observations totaling 17,683 vehicles at its 20 sites, while the Southwest and Southeast Districts each had nearly the same number of observations for their 20 sites but included a higher proportion of 2-lane roads. It is apparent that the data observed for the St. Louis District represent far more vehicles than do the data for the Southwest and Southeast Districts. This was compensated by considering the greater DVMT represented in the St. Louis District as compared to the Southwest and Southeast District resulting in a *weighted* estimation. Similarly, DVMT was used for selecting counties and observation sites by the eight functional road classifications resulting in further weighting of the estimations. NHTSA requires the estimations of seat belt use to be calculated using weighted data; this was done in Missouri using the specifications described in the approved observational plan. Each of the following sections will be identified as containing either weighted or un-weighted data.

STATE-WIDE RESULTS

Observers recorded data from 560 sites within the 28 Missouri counties on 123,678 vehicle occupants of whom 96,705 were drivers and 26,973 were outboard front seat passengers; of these, belt use was unknown for 530 vehicle occupants.

Weighted Data

Tables 2-4, show only weighted data and include the relative weights of the DVMT; however they do exclude the unknowns (530 vehicle occupants).

The overall belt use rate for drivers and passengers combined is 81.4 percent (95 Percent Confidence Interval 81.2% - 81.6%). Table 2 shows the 2016 Seat Belt Use in Missouri.

Table 2: State-wide, Seat Belt Use in Missouri

Belt Use	Frequency	Percent	Standard Error of Percent
Belted	100,525	81.4	0.2192
Non-Belted	22,623	18.6	0.2192
Total	123,148	100.0	

The 2016 survey sampling plan separates the state into seven MoDOT Districts; the weighted seat belt use rates by district are shown in Table 3. The range of percent is from a low of 67.3 percent in the Kansas City District to a high of 90.4 percent in the Central District.

Table 3: State-wide, Belt Use by MoDOT District

District	Percent Belted
Northwest	82.4
Northeast	89.8
Kansas City	67.3
Central	90.4
St. Louis	81.6
Southwest	83.3
Southeast	86.8

Table 4 shows the overall vehicle occupant seat belt use by roadway type. Roadways are stratified using the eight functional roadway classifications of MoDOT. The roadway type Rural Interstate had the highest seat belt use whereas the roadway type Rural Collector had the lowest, at 88.2 and 58.7 percent respectively.

Table 4: State-wide, Belt Use by Roadway Type

Roadway Type	Percent Belted
Rural Arterial	79.8
Rural Collector	58.7
Rural Freeway/Expressway	85.1
Rural Interstate	88.2
Urban Arterial	71.0
Urban Collector	70.1
Urban Freeway/Expressway	82.6
Urban Interstate	76.5

Un-weighted Data

Tables 5-11 show only raw or un-weighted data and do not include the relative weights of the DVMT; they do include the unknowns (530 vehicle occupants). These numbers are not directly comparable to the weighted estimates.

Table 5 exhibits the un-weighted estimates of seat belt use by drivers (81.0%), passengers (82.4%), and overall (81.3%).

Table 5: State-wide, Belt Use by Vehicle Occupant*

Vehicle Occupant	Belted		Non-Belted		Unknown	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Drivers	78,297	81.0	18,054	18.6	354	0.4
Passengers	22,228	82.4	4,569	16.9	176	0.7
Overall	100,525	81.3	22,623	18.3	530	0.4

* Un-weighted Data

Table 6 distributes seat belt usage by MoDOT District. Usage varied from a low of 74.6 percent in the Northwest District to a high of 87.5 percent in the Central District.

Table 6: State-wide, Belt Use by MoDOT District*

MoDOT District	Belted		Non-Belted		Unknown		Overall Percent based upon a total of 123,678 observed	
	Freq.	Percent	Freq.	Percent	Freq.	Percent	Freq.	Percent
Northwest	9,392	74.6	3,116	24.8	79	0.6	12,587	10.2
Northeast	15,941	85.5	2,590	13.9	108	0.6	18,639	15.1
Kansas City	13,258	75.3	4,342	24.6	4	0.1	17,604	14.2
Central	20,109	87.5	2,699	11.7	173	0.8	22,981	18.6
St. Louis	18,109	81.9	3,980	18.0	36	0.1	22,125	17.9
Southwest	10,508	77.6	2,943	21.7	96	0.7	13,547	11.0
Southeast	13,208	81.6	2,953	18.2	34	0.2	16,195	13.0

* Un-weighted data

Driver and Passenger seat belt use by roadway classification is displayed in Table 7 and shows that belt use was highest on Rural Interstate (87.8%). The lowest usage was recorded for the Rural Collector (63.5%) classification.

Table 7: State-wide, Driver & Passenger Belt Use by Roadway Classification*

Roadway Type	Belted		Non-Belted		Unknown		Overall Percent based upon a total of 123,678 observed	
	Freq.	Percent	Freq.	Percent	Freq.	Percent	Freq.	Percent
Rural Arterial	11,537	77.0	3,357	22.4	84	0.6	14,978	12.1
Rural Collector	1,477	63.5	839	36.0	12	0.5	2,328	1.9
Rural Freeway / Expressway	9,551	83.0	1,881	16.4	73	0.6	11,505	9.3
Rural Interstate	34,652	87.8	4,689	11.9	147	0.3	39,488	31.9
Urban Arterial	12,943	70.0	5,459	29.5	99	0.5	18,501	15.0
Urban Collector	1,096	70.9	439	28.4	11	0.7	1,546	1.2
Urban Freeway / Expressway	14,251	84.2	2,600	15.4	77	0.4	16,928	13.7
Urban Interstate	15,018	81.6	3,359	18.3	27	0.1	18,404	14.9

* Un-weighted data

The SUV had the highest seat belt usage for drivers at 86.7 percent, and trucks had the lowest seat belt usage at 69.7 percent. Table 8 shows seat belt use by drivers for vehicle type.

Table 8: State-wide, Driver Belt Use by Vehicle Type*

Vehicle Type	Belted		Non-Belted		Unknown		Overall Percent based upon a total of 123,678 observed	
	Freq.	Percent	Freq.	Percent	Freq.	Percent	Freq.	Percent
Passenger Cars	31,569	82.4	6,581	17.2	154	0.4	38,304	39.6
Sport Utility/Crossover	23,679	86.7	3,563	13.0	77	0.3	27,319	28.3
Pickup Trucks	15,497	69.7	6,626	29.8	106	0.5	22,229	23.0
Van/Minivan	7,552	85.3	1,284	14.5	17	0.2	8,853	9.1

* Un-weighted data

An additional data element collected during the survey was that of Driver Gender. Table 9 provides the seat belt use estimation by driver gender. There were more male drivers 60,437 (62.5%) observed than female drivers 36,268 (37.5%).

Table 9: State-wide, Driver Belt Use by Gender*

Gender	Belted		Non-Belted		Unknown		Overall Percent based upon a total of 123,678 observed	
	Freq.	Percent	Freq.	Percent	Freq.	Percent	Freq.	Percent
Female	30,809	85.0	5,347	14.7	112	0.3	36,268	37.5
Male	47,488	78.6	12,707	21.0	242	0.4	60,437	62.5

*Un-weighted Data

The 2016 survey was scheduled and conducted over a fourteen day period (June 6th through 19th), between the hours of 7:00 am and 6:00 pm. Table 10 shows that of the 123,678 observations of both drivers and passengers Sunday had the highest number of observations at 16,132.

Table 10: State-wide, Driver & Passenger Belt Use by Day of the Week*

Day of the Week	Belted		Non-Belted		Unknown		Overall Percent based upon a total of 123,678 observed	
	Freq.	Percent	Freq.	Percent	Freq.	Percent	Freq.	Percent
Monday	9,554	82.6	1,954	16.9	60	0.5	11,568	9.4
Tuesday	14,888	82.6	3,060	17.0	79	0.4	18,027	14.6
Wednesday	15,045	79.4	3,816	20.2	77	0.4	18,938	15.3
Thursday	15,996	78.6	4,285	21.1	63	0.3	20,344	16.5
Friday	13,910	81.1	3,152	18.4	98	0.5	17,160	13.8
Saturday	15,000	82.3	3,165	17.4	70	0.3	18,235	14.7
Sunday	16,132	83.1	3,191	16.5	83	0.4	19,406	15.7

* Un-weighted Data

Tables 11, 12 and 13 display vehicles observed by time of the day, direction of traffic flow and conditions of the road.

Table 11: State-wide, Vehicles Observed by Time of Day*

Time	Frequency	Percent	Cumulative Frequency	Cumulative Percent
7:00 am	5,727	5.9	5,727	5.9
8:00 am	6,757	7.0	12,484	12.9
9:00 am	6,901	7.1	19,385	20.0
10:00 am	9,080	9.4	28,465	29.4
11:00 pm	8,210	8.5	36,675	37.5
12:00 pm	10,123	10.5	46,798	48.4
1:00 pm	8,014	8.3	54,812	56.7
2:00 pm	10,849	11.2	65,661	67.9
3:00 pm	10,905	11.3	76,566	79.2
4:00 pm	11,871	12.3	88,437	91.5
5:00 pm	8,268	8.5	96,705	100.0

*Un-weighted Data

Table 12: State-wide, Vehicles Observed by Direction of Traffic Flow*

Flow	Frequency	Percent	Cumulative Frequency	Cumulative Percent
East	34,696	35.9	34,696	35.9
North	11,486	11.9	46,182	47.8
South	27,219	28.1	73,401	75.9
West	23,304	24.1	96,705	100.0

*Un-weighted Data

Table 13: State-wide, Vehicles Observed by Road Conditions*

Condition	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Dry	94,492	99.6	94,492	99.6
Wet	391	0.4	94,883	100.0
Fog	0	0.0	0	0
Other	0	0.0	0	0

*Un-weighted Data

Frequency Missing = 1,822

APPENDICES

- A. Vehicle Occupant Fatalities by County, 2008-2010
- B. Top Counties with 85% of Vehicle Occupant Fatalities, 2008-2010
- C. Population by Region for Top 85% Vehicle Occupant Fatality Counties, 2010 Census Data
- D. MoDOT District by Functional Road Type
- E. Site Summary Form
- F. Observational Form

APPENDIX A

Vehicle Occupant Fatalities by County 2008 - 2010

County	2008-2010 Fatalities	3-year avg. Fatalities	% of Contribution	Accumulative Fatalities
JACKSON	161	53.67	7.82%	7.82%
ST. LOUIS	111	37.00	5.39%	13.20%
JEFFERSON	87	29.00	4.22%	17.43%
ST. LOUIS CITY	76	25.33	3.69%	21.12%
GREENE	68	22.67	3.30%	24.42%
ST. CHARLES	57	19.00	2.77%	27.18%
FRANKLIN	54	18.00	2.62%	29.81%
CLAY	51	17.00	2.48%	32.28%
NEWTON	41	13.67	1.99%	34.27%
BOONE	37	12.33	1.80%	36.07%
JASPER	36	12.00	1.75%	37.82%
PETTIS	31	10.33	1.50%	39.32%
ST. FRANCOIS	31	10.33	1.50%	40.83%
LAWRENCE	30	10.00	1.46%	42.28%
CALLAWAY	29	9.67	1.41%	43.69%
MILLER	29	9.67	1.41%	45.10%
CAMDEN	28	9.33	1.36%	46.46%
BARRY	27	9.00	1.31%	47.77%
BUTLER	27	9.00	1.31%	49.08%
COLE	27	9.00	1.31%	50.39%
HOWELL	27	9.00	1.31%	51.70%
WASHINGTON	27	9.00	1.31%	53.01%
CASS	25	8.33	1.21%	54.22%
NEW MADRID	25	8.33	1.21%	55.44%
WARREN	24	8.00	1.17%	56.60%
LACLEDE	21	7.00	1.02%	57.62%
PLATTE	21	7.00	1.02%	58.64%
SCOTT	21	7.00	1.02%	59.66%
LINCOLN	20	6.67	0.97%	60.63%
NODAWAY	20	6.67	0.97%	61.60%
BUCHANAN	19	6.33	0.92%	62.52%
DUNKLIN	19	6.33	0.92%	63.45%
PHELPS	19	6.33	0.92%	64.37%
ST. CLAIR	19	6.33	0.92%	65.29%
TEXAS	19	6.33	0.92%	66.21%
WAYNE	19	6.33	0.92%	67.14%
CHRISTIAN	18	6.00	0.87%	68.01%
MCDONALD	18	6.00	0.87%	68.88%
TANEY	18	6.00	0.87%	69.76%

*APPENDIX A, Continued*Vehicle Occupant Fatalities by County
2008 - 2010

PEMISCOT	17	5.67	0.83%	70.58%
JOHNSON	16	5.33	0.78%	71.36%
MORGAN	16	5.33	0.78%	72.14%
PULASKI	15	5.00	0.73%	72.86%
RIPLEY	15	5.00	0.73%	73.59%
STODDARD	15	5.00	0.73%	74.32%
WEBSTER	15	5.00	0.73%	75.05%
LAFAYETTE	14	4.67	0.68%	75.73%
AUDRAIN	13	4.33	0.63%	76.36%
BARTON	13	4.33	0.63%	76.99%
CAPE GIRARDEAU	13	4.33	0.63%	77.62%
DENT	13	4.33	0.63%	78.25%
MARION	13	4.33	0.63%	78.88%
POLK	13	4.33	0.63%	79.51%
STONE	13	4.33	0.63%	80.15%
BATES	12	4.00	0.58%	80.73%
CRAWFORD	12	4.00	0.58%	81.31%
GRUNDY	12	4.00	0.58%	81.89%
MONTGOMERY	12	4.00	0.58%	82.48%
RAY	12	4.00	0.58%	83.06%
ADAIR	11	3.67	0.53%	83.59%
HENRY	11	3.67	0.53%	84.13%
SALINE	11	3.67	0.53%	84.66%
VERNON	11	3.67	0.53%	85.19%
ANDREW	10	3.33	0.49%	85.68%
DALLAS	10	3.33	0.49%	86.17%
HICKORY	10	3.33	0.49%	86.65%
PIKE	10	3.33	0.49%	87.14%
CARTER	9	3.00	0.44%	87.57%
DOUGLAS	9	3.00	0.44%	88.01%
GASCONADE	9	3.00	0.44%	88.45%
MONROE	9	3.00	0.44%	88.88%
OSAGE	9	3.00	0.44%	89.32%
RANDOLPH	9	3.00	0.44%	89.76%
BENTON	8	2.67	0.39%	90.15%
CALDWELL	8	2.67	0.39%	90.53%
COOPER	8	2.67	0.39%	90.92%
DEKALB	8	2.67	0.39%	91.31%
IRON	8	2.67	0.39%	91.70%
MARIES	8	2.67	0.39%	92.09%
OREGON	8	2.67	0.39%	92.48%
OZARK	8	2.67	0.39%	92.86%
STE. GENEVIEVE	8	2.67	0.39%	93.25%
BOLLINGER	7	2.33	0.34%	93.59%
CEDAR	7	2.33	0.34%	93.93%
LINN	7	2.33	0.34%	94.27%
MISSISSIPPI	7	2.33	0.34%	94.61%

APPENDIX A, Continued

Vehicle Occupant Fatalities by County
2008 - 2010

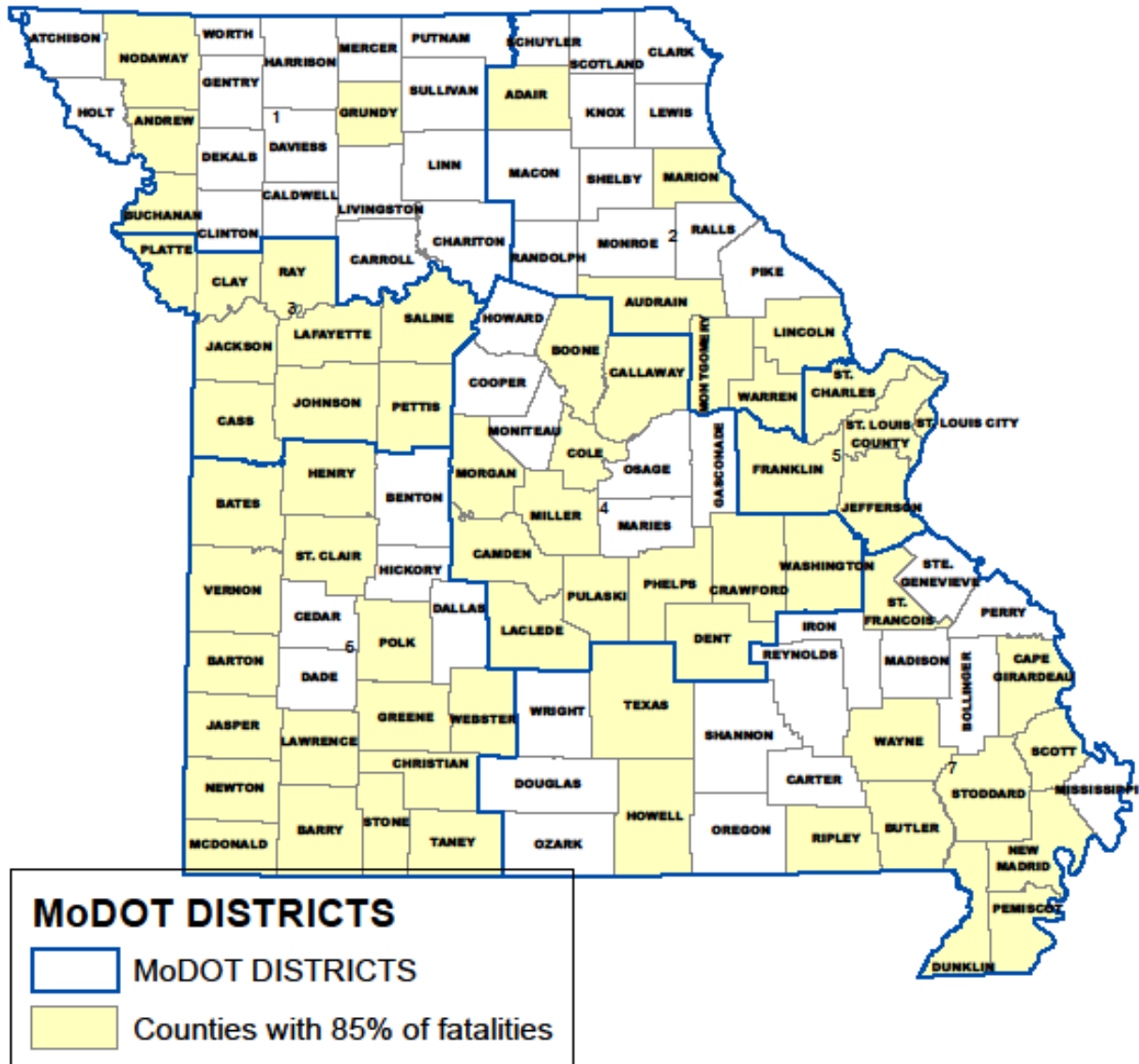
RALLS	7	2.33	0.34%	94.95%
SHANNON	7	2.33	0.34%	95.29%
DAVIESS	6	2.00	0.29%	95.58%
GENTRY	6	2.00	0.29%	95.87%
WRIGHT	6	2.00	0.29%	96.17%
CARROLL	5	1.67	0.24%	96.41%
CLINTON	5	1.67	0.24%	96.65%
DADE	5	1.67	0.24%	96.89%
HARRISON	5	1.67	0.24%	97.14%
MADISON	5	1.67	0.24%	97.38%
MONITEAU	5	1.67	0.24%	97.62%
PERRY	5	1.67	0.24%	97.86%
REYNOLDS	5	1.67	0.24%	98.11%
KNOX	4	1.33	0.19%	98.30%
LIVINGSTON	4	1.33	0.19%	98.50%
CLARK	3	1.00	0.15%	98.64%
HOWARD	3	1.00	0.15%	98.79%
MACON	3	1.00	0.15%	98.93%
SCOTLAND	3	1.00	0.15%	99.08%
SHELBY	3	1.00	0.15%	99.22%
CHARITON	2	0.67	0.10%	99.32%
HOLT	2	0.67	0.10%	99.42%
LEWIS	2	0.67	0.10%	99.51%
PUTNAM	2	0.67	0.10%	99.61%
SCHUYLER	2	0.67	0.10%	99.71%
SULLIVAN	2	0.67	0.10%	99.81%
WORTH	2	0.67	0.10%	99.90%
ATCHISON	1	0.33	0.05%	99.95%
MERCER	1	0.33	0.05%	100.00%
TOTAL	2060	686.67	100.00%	

*Includes drivers/passengers of passenger cars, station wagons, SUVs,
van (8 or less with driver), pick-up and Single-unit Truck with 3 or more axles.*

Top 85th percentile of vehicle occupant fatalities

Top Counties with 85% of Vehicle Occupant Fatalities 2008 - 2010

APPENDIX B



Includes drivers and passengers of passenger cars, station wagons, SUVs, Van (8 or less with driver), pick-up, and single-unit trucks with 2 axles, 6 tires.



www.modot.org
1-888-ASK-MODOT

Created on September 13, 2011

J:\dergub1\Map_Projects_Bes\Fatalities\TopCounties85AppendixB.mxd

APPENDIX C

POPULATION BY REGION
for Top 85% Vehicle Occupant Fatality Counties
2010 Census Data
Total Population 5,422,630

NORTHWEST			
County	Population	Urban/Rural	% Contribution
BUCHANAN	89,201	Urban	
NODAWAY	23,370	Rural	
ANDREW	17,291	Rural	
GRUNDY	10,261	Rural	
TOTAL			2.58%

NORTHEAST			
County	Population	Region	% Contribution
LINCOLN	52,566	Urban	
WARREN	32,513	Rural	
MARION	28,781	Rural	
ADAIR	25,607	Rural	
AUDRAIN	25,529	Rural	
MONTGOMERY	12,236	Rural	
TOTAL			3.27%

KANSAS CITY			
County	Population	Region	% Contribution
JACKSON	674,158	Urban	
CLAY	221,939	Urban	
CASS	99,478	Urban	
PLATTE	89,322	Urban	
JOHNSON	52,595	Urban	
PETTIS	42,201	Rural	
LAFAYETTE	33,381	Rural	
RAY	23,494	Rural	
SALINE	23,370	Rural	
TOTAL			23.23%

APPENDIX C, Continued

CENTRAL DISTRICT			
County	Population	Region	% Contribution
BOONE	162,642	Urban	
COLE	75,990	Urban	
PULASKI	52,274	Urban	
PHELPS	45,156	Rural	
CALLAWAY	44,332	Rural	
CAMDEN	44,002	Rural	
LACLEDE	35,571	Rural	
WASHINGTON	25,195	Rural	
MILLER	24,748	Rural	
CRAWFORD	24,696	Rural	
MORGAN	20,565	Rural	
DENT	15,657	Rural	
TOTAL			10.53%

ST. LOUIS			
County	Population	Region	% Contribution
ST. LOUIS	998,954	Urban	
ST. CHARLES	360,485	Urban	
ST. LOUIS CITY	319,294	Urban	
JEFFERSON	218,733	Urban	
FRANKLIN	101,492	Urban	
TOTAL			36.86%

SOUTHWEST			
County	Population	Region	% Contribution
GREENE	275,174	Urban	
JASPER	117,404	Urban	
CHRISTIAN	77,422	Urban	
NEWTON	58,114	Urban	
TANEY	51,675	Urban	
LAWRENCE	38,634	Rural	
WEBSTER	36,202	Rural	
BARRY	35,597	Rural	
STONE	32,202	Rural	
POLK	31,137	Rural	
MCDONALD	23,083	Rural	
HENRY	22,272	Rural	
VERNON	21,159	Rural	
BATES	17,049	Rural	
BARTON	12,402	Rural	
ST. CLAIR	9,805	Rural	
TOTAL			15.85%

APPENDIX C, Continued

SOUTHEAST			
County	Population	Region	% Contribution
CAPE GIRARDEAU	75,674	Urban	
ST. FRANCOIS	65,359	Urban	
BUTLER	42,794	Rural	
HOWELL	40,400	Rural	
SCOTT	39,191	Rural	
DUNKLIN	31,953	Rural	
STODDARD	29,968	Rural	
TEXAS	26,008	Rural	
NEW MADRID	18,956	Rural	
PEMISCOT	18,296	Rural	
RIPLEY	14,100	Rural	
WAYNE	13,521	Rural	
TOTAL			7.68%

Total Population of Top 85% Vehicle Occupant Fatality Counties	5,422,630
Total State Population	5,988,927

APPENDIX D

MoDOT District by Functional Road Type

Northwest District

ANDREW (Rural) County		Selected sample segments: 0 Urban, 20 Rural		
Urban	Urban DVMT	% of Total DVMT	Total Segments	# of Selected Road Segments – 0 Urban
Subtotal	17,830	2.68%	79	
Interstate	1,430	0.22%	29	0
Freeway/Expressway	2,413	0.37%	6	0
Arterial	9,214	1.37%	16	0
Collector	4,773	0.72%	28	0
Rural	Rural DVMT	% of Total DVMT	Total Segments	# of Selected Road Segments – 20 Rural
Subtotal	642,985	97.32%	582	
Interstate	289,777	43.85%	29	9
Freeway/Expressway	132,013	19.98%	58	4
Arterial	122,792	18.58%	105	4
Collector	98,403	14.89%	390	3
Totals	660,815	100%	661	20

BUCHANAN (Urban) County		Selected sample segments: 11 Urban, 9 Rural		
Urban	Urban DVMT	% of Total DVMT	Total Segments	# of Selected Road Segments – 11 Urban
Subtotal	1,152,118	59%	1,247	
Interstate	281,872	14.38%	48	3
Freeway/Expressway	115,919	5.91%	38	1
Arterial	604,964	30.87%	730	6
Collector	149,363	7.62%	431	1
Rural	Rural DVMT	% of Total DVMT	Total Segments	# of Selected Road Segments – 9 Rural
Subtotal	807,836	41%	425	
Interstate	399,236	20.37%	13	4
Freeway/Expressway	93,927	4.79%	18	1
Arterial	171,855	8.77%	57	2
Collector	142,818	7.29%	337	2
Totals	1,959,954	100%	1,672	20

GRUNDY (Rural) County		Selected sample segments: 6 Urban, 14 Rural		
Urban	Urban DVMT	% of Total DVMT	Total Segments	# of Selected Road Segments – 6 Urban
Subtotal	61,609	31%	238	
Interstate	0	0	0	0
Freeway/Expressway	0	0	0	0
Arterial	54,115	26.84%	135	5
Collector	7,494	3.72%	103	1
Rural	Rural DVMT	% of Total DVMT	Total Segments	# of Selected Road Segments – 14 Rural
Subtotal	140,013	69%	315	
Interstate	0	0	0	0
Freeway/Expressway	0	0	0	0
Arterial	95,005	47.12%	58	9
Collector	45,008	22.32%	257	5
Totals	201,622	100%	553	20

APPENDIX D, Continued

MoDOT District by Functional Road Type

Northwest District

NODAWAY (Rural) County		Selected sample segments: 6 Urban, 14 Rural		
Urban	Urban DVMT	% of Total DVMT	Total Segments	# of Selected Road Segments – 6 Urban
Subtotal	131,761	28%	234	
Interstate	0	0	0	0
Freeway/Expressway	0	0	0	0
Arterial	105,441	22.49%	118	5
Collector	26,320	5.61%	116	1
Rural	Rural DVMT	% of Total DVMT	Total Segments	# of Selected Road Segments – 14 Rural
Subtotal	336,993	72%	737	
Interstate	0	0	0	0
Freeway/Expressway	80,304	17.13%	31	3
Arterial	144,786	30.89%	129	6
Collector	111,903	23.87%	577	5
Totals	468,754	100%	971	20

APPENDIX D, Continued

MoDOT District by Functional Road Type

Northeast District

AUDRAIN (Rural) County Selected sample segments: 7 Urban, 13 Rural				
Urban	Urban DVMT	% of Total DVMT	Total Segments	# of Selected Road Segments – 7 Urban
Subtotal	156,533	28%	297	
Interstate	0	0	0	0
Freeway/Expressway	6,509	1.18%	4	1
Arterial	132,650	23.96%	168	5
Collector	17,374	3.14%	125	1
Rural	Rural DVMT	% of Total DVMT	Total Segments	# of Selected Road Segments – 13 Rural
Subtotal	397,203	72%	515	
Interstate	0	0	0	0
Freeway/Expressway	39,552	7.14%	11	1
Arterial	230,974	41.71%	129	8
Collector	126,677	22.88%	375	4
Totals	553,736	100%	812	20

LINCOLN (Urban) County Selected sample segments: 4 Urban, 16 Rural				
Urban	Urban DVMT	% of Total DVMT	Total Segments	# of Selected Road Segments – 4 Urban
Subtotal	248,979	23%	142	
Interstate	0	0	0	0
Freeway/Expressway	155,106	14.08%	19	3
Arterial	73,606	6.68%	53	1
Collector	20,267	1.84%	70	0
Rural	Rural DVMT	% of Total DVMT	Total Segments	# of Selected Road Segments – 16 Rural
Subtotal	852,642	77%	742	
Interstate	0	0	0	0
Freeway/Expressway	347,454	31.54%	41	6
Arterial	258,736	23.49%	154	5
Collector	246,452	22.37%	547	5
Totals	1,101,621	100%	884	20

MARION (Rural) County Selected sample segments: 6 Urban, 14 Rural				
Urban	Urban DVMT	% of Total DVMT	Total Segments	# of Selected Road Segments – 6 Urban
Subtotal	290,273	32.40%	381	
Interstate	28,119	3.14%	8	0
Freeway/Expressway	90,964	10.15%	32	2
Arterial	133,914	14.95%	225	3
Collector	37,276	4.16%	116	1
Rural	Rural DVMT	% of Total DVMT	Total Segments	# of Selected Road Segments – 14 Rural
Subtotal	605,711	67.60%	350	
Interstate	0	0	0	0
Freeway/Expressway	406,486	45.37%	102	9
Arterial	76,942	8.59%	23	2
Collector	122,283	13.65%	225	3
Totals	854,828	100%	442	20

APPENDIX D, Continued

MoDOT District by Functional Road Type

Northeast District

MONTGOMERY (Rural) County Selected sample segments: 0 Urban, 20 Rural				
Urban	Urban DVMT	% of Total DVMT	Total Segments	# of Selected Road Segments – 0 Urban
Subtotal	0	0	0	
Interstate	0	0	0	0
Freeway/Expressway	0	0	0	0
Arterial	0	0	0	0
Collector	0	0	0	0
Rural	Rural DVMT	% of Total DVMT	Total Segments	# of Selected Road Segments – 20 Rural
Subtotal	854,828	100%	442	
Interstate	632,938	74.04%	20	15
Freeway/Expressway	0	0	0	0
Arterial	158,630	18.56%	172	4
Collector	63,260	7.40%	250	1
Totals	854,828	100%	442	20

APPENDIX D, Continued

MoDOT District by Functional Road Type

Kansas City District

JACKSON (Urban) County		Selected sample segments: 19 Urban, 1 Rural		
Urban	Urban DVMT	% of Total DVMT	Total Segments	# of Selected Road Segments – 19 Urban
Subtotal	14,287,284	97%	7,830	
Interstate	5,691,632	38.52%	309	8
Freeway/Expressway	2,560,570	17.33%	320	3
Arterial	5,392,522	36.50%	5,302	7
Collector	642,560	4.35%	1,899	1
Rural	Rural DVMT	% of Total DVMT	Total Segments	# of Selected Road Segments – 1 Rural
Subtotal	487,873	3%	158	
Interstate	92,399	0.63%	0	0
Freeway/Expressway	0	0	0	0
Arterial	186,111	1.26%	53	0
Collector	209,363	1.42%	105	1
Totals	14,775,157	100%	7,988	20

JOHNSON (Urban) County		Selected sample segments: 4 Urban, 16 Rural		
Urban	Urban DVMT	% of Total DVMT	Total Segments	# of Selected Road Segments – 4 Urban
Subtotal	235,712	21%	382	
Interstate	0	0	0	0
Freeway/Expressway	52,277	4.70%	12	1
Arterial	154,998	13.94%	236	3
Collector	28,437	2.56%	134	0
Rural	Rural DVMT	% of Total DVMT	Total Segments	# of Selected Road Segments – 16 Rural
Subtotal	876,055	79%	703	
Interstate	0	0	0	0
Freeway/Expressway	0	0	0	0
Arterial	615,643	55.38%	205	11
Collector	260,412	23.42%	498	5
Totals	1,111,767	100%	1,085	20

LAFAYETTE (Rural) County		Selected sample segments: 0 Urban, 20 Rural		
Urban	Urban DVMT	% of Total DVMT	Total Segments	# of Selected Road Segments – 0 Urban
Subtotal	0	0	0	
Interstate	0	0	0	0
Freeway/Expressway	0	0	0	0
Arterial	0	0	0	0
Collector	0	0	0	0
Rural	Rural DVMT	% of Total DVMT	Total Segments	# of Selected Road Segments – 20 Rural
Subtotal	1,468,433	100%	786	
Interstate	1,015,063	69.13%	44	14
Freeway/Expressway	0	0	0	0
Arterial	231,588	15.77%	163	3
Collector	221,782	15.10%	579	3
Totals	1,468,433	100%	786	20

APPENDIX D, Continued

MoDOT District by Functional Road Type

Kansas City District

SALINE (Rural) County		Selected sample segments: 2 Urban, 18 Rural		
Urban	Urban DVMT	% of Total DVMT	Total Segments	# of Selected Road Segments – 2 Urban
Subtotal	117,439	11%	280	
Interstate	0	0	0	0
Freeway/Expressway	1,382	0.13%	2	0
Arterial	101,144	9.70%	162	2
Collector	14,913	1.43%	116	0
Rural	Rural DVMT	% of Total DVMT	Total Segments	# of Selected Road Segments – 18 Rural
Subtotal	924,863	89%	565	
Interstate	616,278	59.13%	26	12
Freeway/Expressway	80,844	7.76%	37	2
Arterial	149,726	14.36%	101	3
Collector	78,015	7.48%	401	1
Totals	1,042,302	100%	845	20

APPENDIX D, Continued

MoDOT District by Functional Road Type

Central District

BOONE (Urban) County Selected sample segments: 12 Urban, 8 Rural				
Urban	Urban DVMT	% of Total DVMT	Total Segments	# of Selected Road Segments – 12 Urban
Subtotal	2,152,936	58%	1,219	
Interstate	500,224	13.54%	26	3
Freeway/Expressway	439,898	11.91%	66	2
Arterial	933,720	25.27%	591	5
Collector	279,094	7.55%	536	2
Rural	Rural DVMT	% of Total DVMT	Total Segments	# of Selected Road Segments – 8 Rural
Subtotal	1,541,770	42%	625	
Interstate	449,650	12.17%	16	2
Freeway/Expressway	0	0	0	0
Arterial	862,144	23.33%	174	5
Collector	229,976	6.22%	435	1
Totals	3,694,706	100%	1,844	20

CALLAWAY (Rural) County Selected sample segments: 4 Urban, 16 Rural				
Urban	Urban DVMT	% of Total DVMT	Total Segments	# of Selected Road Segments – 4 Urban
Subtotal	462,450	23%	341	
Interstate	0	0	0	0
Freeway/Expressway	324,146	16.13%	54	3
Arterial	107,093	5.33%	172	1
Collector	31,211	1.55%	115	0
Rural	Rural DVMT	% of Total DVMT	Total Segments	# of Selected Road Segments – 16 Rural
Subtotal	1,546,767	77%	506	
Interstate	873,629	43.48%	20	9
Freeway/Expressway	0	0	0	0
Arterial	454,763	22.63%	117	5
Collector	218,375	10.87%	369	2
Totals	2,009,217	100%	847	20

COLE (Urban) County Selected sample segments: 13 Urban, 7 Rural				
Urban	Urban DVMT	% of Total DVMT	Total Segments	# of Selected Road Segments – 13 Urban
Subtotal	1,156,814	68%	901	
Interstate	0	0	0	0
Freeway/Expressway	543,107	31.99%	100	6
Arterial	493,670	29.08%	496	6
Collector	120,037	7.07%	305	1
Rural	Rural DVMT	% of Total DVMT	Total Segments	# of Selected Road Segments – 7 Rural
Subtotal	541,078	32%	404	
Interstate	0	0	0	0
Freeway/Expressway	0	0	0	0
Arterial	368,756	21.72%	107	5
Collector	172,322	10.15%	297	2
Totals	1,697,892	100%	1,305	20

APPENDIX D, Continued

MoDOT District by Functional Road Type

Central District

PHELPS (Rural) County Selected sample segments: 7 Urban, 13 Rural				
Urban	Urban DVMt	% of Total DVMt	Total Segments	# of Selected Road Segments – 7 Urban
Subtotal	516,880	33%	395	
Interstate	275,314	17.34%	16	4
Freeway/Expressway	0	0	0	0
Arterial	190,077	11.97%	213	2
Collector	51,489	3.24%	166	1
Rural	Rural DVMt	% of Total DVMt	Total Segments	# of Selected Road Segments – 13 Rural
Subtotal	1,070,432	67%	428	
Interstate	627,182	39.51%	23	8
Freeway/Expressway	0	0	0	0
Arterial	258,370	16.28%	107	3
Collector	184,880	11.65%	298	2
Totals	1,587,312	100%	823	20

APPENDIX D, Continued

MoDOT District by Functional Road Type

St. Louis District

JEFFERSON (Urban) County Selected sample segments: 14 Urban, 6 Rural				
Urban	Urban DVMT	% of Total DVMT	Total Segments	# of Selected Road Segments – 14 Urban
Subtotal	3,143,755	68%	2,056	
Interstate	1,128,720	24.40%	39	5
Freeway/Expressway	632,218	13.67%	98	3
Arterial	991,051	21.42%	801	4
Collector	391,766	8.47%	1,118	2
Rural	Rural DVMT	% of Total DVMT	Total Segments	# of Selected Road Segments – 6 Rural
Subtotal	1,481,999	32%	1,056	
Interstate	193,211	4.18%	6	0
Freeway/Expressway	0	0	0	0
Arterial	852,267	18.42%	174	4
Collector	436,521	9.44%	876	2
Totals	4,625,754	100%	3,112	20

FRANKLIN (Urban) County Selected sample segments: 10 Urban, 10 Rural				
Urban	Urban DVMT	% of Total DVMT	Total Segments	# of Selected Road Segments – 10 Urban
Subtotal	1,569,426	52.15%	793	
Interstate	835,096	27.75%	37	5
Freeway/Expressway	0	0	0	0
Arterial	541,387	17.99%	399	4
Collector	192,943	6.41%	357	1
Rural	Rural DVMT	% of Total DVMT	Total Segments	# of Selected Road Segments – 10 Rural
Subtotal	1,440,256	47.85%	552	
Interstate	393,015	13.06%	11	3
Freeway/Expressway	0	0	0	0
Arterial	663,872	22.06%	150	4
Collector	383,369	12.74%	391	3
Totals	3,009,682	100%	1,345	20

ST. CHARLES (Urban) County Selected sample segments: 17 Urban, 3 Rural				
Urban	Urban DVMT	% of Total DVMT	Total Segments	# of Selected Road Segments – 17 Urban
Subtotal	7,377,421	91%	2,714	
Interstate	2,526,967	31.21%	115	6
Freeway/Expressway	1,373,128	16.96%	56	3
Arterial	2,576,642	31.83%	1,136	6
Collector	900,684	11.12%	1,407	2
Rural	Rural DVMT	% of Total DVMT	Total Segments	# of Selected Road Segments – 3 Rural
Subtotal	718,632	9%	493	
Interstate	0	0	0	0
Freeway/Expressway	48,296	0.60%	6	1
Arterial	315,011	3.89%	78	1
Collector	355,325	4.39%	409	1
Totals	8,096,053	100%	3,207	20

APPENDIX D, Continued

MoDOT District by Functional Road Type

St. Louis District

ST. LOUIS (Urban) County/City		Selected sample segments: 20 Urban, 0 Rural		
Urban	Urban DVMT	% of Total DVMT	Total Segments	# of Selected Road Segments – 20 Urban
Subtotal	32,185,254	100%	9,888	
Interstate	15,979,945	49.65%	414	10
Freeway/Expressway	2,732,693	8.49%	190	1
Arterial	10,532,055	32.72%	4,666	7
Collector	2,940,561	9.14%	4,618	2
Rural	Rural DVMT	% of Total DVMT	Total Segments	# of Selected Road Segments – 0 Rural
Subtotal	0	0	0	
Interstate	0	0	0	0
Freeway/Expressway	0	0	0	0
Arterial	0	0	0	0
Collector	0	0	0	0
Totals	32,185,254	100%	9,888	20

APPENDIX D, Continued

MoDOT District by Functional Road Type

Southwest District

GREENE (Urban) County Selected sample segments: 14 Urban, 6 Rural				
Urban	Urban DVMT	% of Total DVMT	Total Segments	# of Selected Road Segments – 14 Urban
Subtotal	4,954,107	74%	2,959	
Interstate	531,782	7.90%	30	1
Freeway/Expressway	2,051,056	30.47%	471	6
Arterial	1,935,457	28.75%	1,343	6
Collector	435,812	6.47%	1,115	1
Rural	Rural DVMT	% of Total DVMT	Total Segments	# of Selected Road Segments – 6 Rural
Subtotal	1,776,926	26%	817	
Interstate	662,524	9.84%	20	2
Freeway/Expressway	580,988	8.63%	82	2
Arterial	172,579	2.56%	107	1
Collector	360,835	5.36%	608	1
Totals	6,731,033	100%	3,776	20

HENRY (Rural) County Selected sample segments: 4 Urban, 16 Rural				
Urban	Urban DVMT	% of Total DVMT	Total Segments	# of Selected Road Segments – 4 Urban
Subtotal	150,358	20%	197	
Interstate	0	0	0	0
Freeway/Expressway	0	0	0	0
Arterial	141,027	18.63%	154	4
Collector	9,331	1.23%	43	0
Rural	Rural DVMT	% of Total DVMT	Total Segments	# of Selected Road Segments – 16 Rural
Subtotal	606,545	80%	586	
Interstate	0	0	0	0
Freeway/Expressway	0	0	0	0
Arterial	480,615	63.50%	160	13
Collector	125,930	16.64%	426	3
Totals	756,903	100%	783	20

JASPER (Urban) County Selected sample segments: 11 Urban, 9 Rural				
Urban	Urban DVMT	% of Total DVMT	Total Segments	# of Selected Road Segments – 11 Urban
Subtotal	1,443,272	52%	1,719	
Interstate	75,692	2.72%	7	1
Freeway/Expressway	164,675	5.93%	60	1
Arterial	1,039,423	37.41%	1,111	8
Collector	163,482	5.88%	541	1
Rural	Rural DVMT	% of Total DVMT	Total Segments	# of Selected Road Segments – 9 Rural
Subtotal	1,335,132	48%	545	
Interstate	587,707	21.15%	22	4
Freeway/Expressway	296,565	10.67%	35	2
Arterial	161,945	5.83%	119	1
Collector	288,915	10.40%	369	2
Totals	2,778,404	100%	2,264	20

APPENDIX D, Continued

MoDOT District by Functional Road Type

Southwest District

LAWRENCE (Rural) County Selected sample segments: 2 Urban, 18 Rural				
Urban	Urban DVMt	% of Total DVMt	Total Segments	# of Selected Road Segments – 2 Urban
Subtotal	113,463	8%	278	
Interstate	0	0	0	0
Freeway/Expressway	0	0	0	0
Arterial	101,996	7.23%	180	2
Collector	11,467	0.81%	98	0
Rural	Rural DVMt	% of Total DVMt	Total Segments	# of Selected Road Segments – 18 Rural
Subtotal	1,297,421	92%	586	
Interstate	759,726	53.85%	30	11
Freeway/Expressway	0	0	0	0
Arterial	365,603	25.91%	166	5
Collector	172,092	12.20%	390	2
Totals	1,410,884	100%	864	20

APPENDIX D, Continued

MoDOT District by Functional Road Type

Southeast District

CAPE GIRARDEAU (Urban) County Selected sample segments: 12 Urban, 8 Rural				
Urban Subtotal	Urban DVMT 1,059,415	% of Total DVMT 59%	Total Segments 885	# of Selected Road Segments – 12 Urban
Interstate	323,009	18.04%	23	4
Freeway/Expressway	107,657	6.01%	43	1
Arterial	507,525	28.35%	512	6
Collector	121,224	6.77%	307	1
Rural Subtotal	Rural DVMT 731,068	% of Total DVMT 41%	Total Segments 591	# of Selected Road Segments – 8 Rural
Interstate	265,453	14.83%	16	3
Freeway/Expressway	0	0	0	0
Arterial	177,209	9.90%	92	2
Collector	288,406	16.11%	483	3
Totals	1,790,483	100%	1,476	20

PEMISCOT (Rural) County Selected sample segments: 1 Urban, 19 Rural				
Urban Subtotal	Urban DVMT 60,309	% of Total DVMT 6%	Total Segments 158	# of Selected Road Segments – 1 Urban
Interstate	11,144	1.06%	4	0
Freeway/Expressway	0	0	0	0
Arterial	41,889	3.98%	96	1
Collector	7,276	0.69%	58	0
Rural Subtotal	Rural DVMT 992,771	% of Total DVMT 94%	Total Segments 512	# of Selected Road Segments – 19 Rural
Interstate	659,017	62.58%	54	13
Freeway/Expressway	101,917	9.68%	33	2
Arterial	62,823	5.97%	61	1
Collector	169,014	16.05%	364	3
Totals	1,053,080	100%	670	20

STODDARD (Rural) County Selected sample segments: 4 Urban, 16 Rural				
Urban Subtotal	Urban DVMT 145,427	% of Total DVMT 18%	Total Segments 236	# of Selected Road Segments – 4 Urban
Interstate	0	0	0	0
Freeway/Expressway	60,610	7.61%	30	1
Arterial	70,415	8.85%	124	2
Collector	14,402	1.81%	82	1
Rural Subtotal	Rural DVMT 650,551	% of Total DVMT 82%	Total Segments 706	# of Selected Road Segments – 16 Rural
Interstate	0	0	0	0
Freeway/Expressway	240,877	30.26%	36	6
Arterial	161,020	20.23%	104	4
Collector	248,654	31.24%	566	6
Totals	795,978	100%	942	20

APPENDIX D, Continued

MoDOT District by Functional Road Type

Southeast District

St. Francois (Urban) County		Selected sample segments: 11 Urban, 9 Rural		
Urban Subtotal	Urban DVMT 645,283	% of Total DVMT 52.47%	Total Segments 741	# of Selected Road Segments – 11 Urban
Interstate	0	0	0	0
Freeway/Expressway	339,504	27.60%	68	6
Arterial	224,760	18.28%	361	4
Collector	81,019	6.59%	312	1
Rural Subtotal	Rural DVMT 584,585	% of Total DVMT 47.53%	Total Segments 324	# of Selected Road Segments – 9 Rural
Interstate	0	0	0	0
Freeway/Expressway	272,322	22.14%	31	4
Arterial	106,061	8.62%	83	2
Collector	206,202	16.77%	210	3
Totals	1,229,868	100%	1,065	20

APPENDIX E, Site Summary Form

Statewide Seat Belt Survey

Site Summary Form

Observer: _____ County: _____

Date: _____ Time: Start _____ End _____

Road Condition: ☐ ☐ ☐ ☐
 Dry Wet Fog Other: _____

Observation Point (be specific): _____

Major Distractions: _____

PLEASE COMPLETE ALL INFORMATION ABOVE THIS LINE

Road Segment:	County:	Road Type:	Start Time:
<input type="radio"/> 1	<input type="radio"/> 01-Andrew	<input type="radio"/> Rural Interstate (RI)	<input type="radio"/> 7:00 AM
<input type="radio"/> 2	<input type="radio"/> 02-Audrain	<input type="radio"/> Rural Freeway/Expressway (RF/E)	<input type="radio"/> 8:00 AM
<input type="radio"/> 3	<input type="radio"/> 03-Boone	<input type="radio"/> Rural Arterial (RA)	<input type="radio"/> 9:00 AM
<input type="radio"/> 4	<input type="radio"/> 04-Buchanan	<input type="radio"/> Rural Collector (RC)	<input type="radio"/> 10:00 AM
<input type="radio"/> 5	<input type="radio"/> 05-Callaway	<input type="radio"/> Urban Interstate (UI)	<input type="radio"/> 11:00 AM
<input type="radio"/> 6	<input type="radio"/> 06-Cape Girardeau	<input type="radio"/> Urban Freeway/Expressway (UF/E)	<input type="radio"/> 12:00 PM
<input type="radio"/> 7	<input type="radio"/> 07-Cole	<input type="radio"/> Urban Arterial (UA)	<input type="radio"/> 1:00 PM
<input type="radio"/> 8	<input type="radio"/> 08-Franklin	<input type="radio"/> Urban Collector (UC)	<input type="radio"/> 2:00 PM
<input type="radio"/> 9	<input type="radio"/> 09-Greene		<input type="radio"/> 3:00 PM
<input type="radio"/> 10	<input type="radio"/> 10-Grundy		<input type="radio"/> 4:00 PM
<input type="radio"/> 11	<input type="radio"/> 11-Henry	Traffic Flow:	<input type="radio"/> 5:00 PM
<input type="radio"/> 12	<input type="radio"/> 12-Jackson		
<input type="radio"/> 13	<input type="radio"/> 13-Jasper	<input type="radio"/> North	
<input type="radio"/> 14	<input type="radio"/> 14-Jefferson	<input type="radio"/> East	County:
<input type="radio"/> 15	<input type="radio"/> 15-Johnson	<input type="radio"/> South	
<input type="radio"/> 16	<input type="radio"/> 16-Lafayette	<input type="radio"/> West	<input type="radio"/> Urban
<input type="radio"/> 17	<input type="radio"/> 17-Lawrence		<input type="radio"/> Rural
<input type="radio"/> 18	<input type="radio"/> 18-Lincoln		
<input type="radio"/> 19	<input type="radio"/> 19-Marion		
<input type="radio"/> 20	<input type="radio"/> 20-Montgomery	Day of the Week:	District:
<input type="radio"/> 21	<input type="radio"/> 21-Nodaway		
<input type="radio"/> 22	<input type="radio"/> 22-Pemiscot	<input type="radio"/> Sunday	<input type="radio"/> 01-Northwest
<input type="radio"/> 23	<input type="radio"/> 23-Phelps	<input type="radio"/> Monday	<input type="radio"/> 02-Northeast
<input type="radio"/> 24	<input type="radio"/> 24-Saline	<input type="radio"/> Tuesday	<input type="radio"/> 03-Kansas City
<input type="radio"/> 25	<input type="radio"/> 25-St. Charles	<input type="radio"/> Wednesday	<input type="radio"/> 04-Central
<input type="radio"/> 26	<input type="radio"/> 26-St. Francois	<input type="radio"/> Thursday	<input type="radio"/> 05-St. Louis
<input type="radio"/> 27	<input type="radio"/> 27-St. Louis/City	<input type="radio"/> Friday	<input type="radio"/> 06-Southwest
<input type="radio"/> 28	<input type="radio"/> 28-Stoddard	<input type="radio"/> Saturday	<input type="radio"/> 07-Southeast

APPENDIX F, Observation Form

District:	County:	<input type="radio"/>	<input type="radio"/>	0	Road Segment:	<input type="radio"/>	<input type="radio"/>	0	Observer: _____
		<input type="radio"/>	<input type="radio"/>	1		<input type="radio"/>	<input type="radio"/>	1	
<input type="radio"/> 1-NW		<input type="radio"/>	<input type="radio"/>	2		<input type="radio"/>	<input type="radio"/>	2	
<input type="radio"/> 2-NE		<input type="radio"/>	<input type="radio"/>	3		<input type="radio"/>	<input type="radio"/>	3	
<input type="radio"/> 3-KC		<input type="radio"/>	<input type="radio"/>	4		<input type="radio"/>	<input type="radio"/>	4	
<input type="radio"/> 4-Central		<input type="radio"/>	<input type="radio"/>	5		<input type="radio"/>	<input type="radio"/>	5	
<input type="radio"/> 5-St. Louis		<input type="radio"/>	<input type="radio"/>	6		<input type="radio"/>	<input type="radio"/>	6	
<input type="radio"/> 6-SW		<input type="radio"/>	<input type="radio"/>	7		<input type="radio"/>	<input type="radio"/>	7	Page: _____ of _____
<input type="radio"/> 7-SE		<input type="radio"/>	<input type="radio"/>	8		<input type="radio"/>	<input type="radio"/>	8	
		<input type="radio"/>	<input type="radio"/>	9		<input type="radio"/>	<input type="radio"/>	9	

	Vehicle Type				Driver Belted			Driver Gender		Passenger Belted		
	Car	Truck	Minivan/ Van	SUV/ Crossover	Yes	No	Un- known	M	F	Yes	No	Un- known
1.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>